Controlling Dangerous Pathogens
A Blueprint for U.S.-Russian Cooperation

A Report to the Cooperative Threat Reduction Program of
the U.S. Department of Defense

U.S.-Russian Collaborative Program for Research and Monitoring of Pathogens of
Global Importance Committee

National Academy of Sciences/Institute of Medicine/National Research Council

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ACRONYMS

ACDA	U.S. Arms Control and Disarmament Agency
AG	Australia Group
BW	biological weapons
BWC	Biological Weapons Convention
CBW	chemical and biological weapons
CDC	Centers for Disease Control and Prevention
CTR	Cooperative Threat Reduction
CW	chemical weapons
DOD	U.S. Department of Defense
DOE	U.S. Department of Energy
FDA	U.S. Food and Drug Administration
EMC	Division of Emerging and Other Communicable Diseases, Surveillance and Control
FSU	former Soviet Union
GCC	Gore-Chernomyrdin Commission
IOM	Institute of Medicine
IPP	U.S. Department of Energy Initiatives for Proliferation Prevention
ISTC	International Science and Technology Center
MOD	Russian Ministry of Defense
NAS	National Academy of Sciences
NIH	National Institutes of Health
OTA	Office of Technology Assessment
USAMRIID	U.S. Army Medical Research Institute of Infectious Diseases
USDA	U.S. Department of Agriculture
WHO	World Health Organization

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Preface

The National Academy of Sciences (NAS) created the Committee on International Security and Arms Control (CISAC) in 1980 to bring the scientific and technical resources of the Academy to bear on urgent problems of international peace and security. The primary initial activity of CISAC was a dialogue with Soviet counterparts that helped keep communication on nuclear arms control issues open during a time of great tension in U.S.-Soviet relations. In 1986, CISAC created a special working group on biological weapons control, which focused on another critical problem—developing improved methods of verification of the Biological Weapons Convention (BWC). The group carried out bilateral discussions with a counterpart group established under the aegis of the Soviet Academy of Sciences and then supported by the Russian Academy of Sciences.

Beginning in 1993 the working group became particularly concerned about potential proliferation of biological weapons (BW) know-how because of the economic difficulties that afflicted the former Soviet BW complex, along with other Russian institutions, after the collapse of the Soviet Union. At the same time, the group was impressed with the Russian expertise in the biological sciences and biotechnology. There appeared to be a good opportunity to draw on that experience in a cooperative effort to combat the global threat of emerging infectious diseases and promote U.S. national security interests. Members of the working group began to discuss this opportunity with appropriate officials of the U.S. government and encouraged efforts such as the decision of the International Science and Technology Center (ISTC) to fund appropriate research projects at former Soviet BW facilities. In 1995 the U.S. Department of Defense (DOD) asked CISAC for assistance in designing a program to expand bilateral cooperative efforts between U.S. scientists and their Russian counterparts who had been involved in the former Soviet BW program.

For assistance in developing the project, CISAC turned to two other parts of the Academy complex—the Board on International Health (BIH) of the Institute of Medicine (IOM) and the Office for Central Europe and Eurasia (OCEE) of the National Research Council. Both had extensive experience in areas directly relevant to fulfilling the DOD request. IOM has been concerned with the spread of infectious diseases; its 1992 report *Emerging Infections: Microbial Threats to Health in the United States* helped spark increased national and international attention to the risks posed by new and reemerging diseases.[1] For its part, OCEE had maintained contacts and exchanges with Soviet/Russian scientists for almost 40 years, acquiring unique experience and building an unmatched network of contacts. In October 1996, OCEE produced *An Assessment of the International Science and Technology Center (ISTC),* followed in 1997 by a related report, *Proliferation Concerns: Assessing U.S. Efforts to Help Contain Nuclear and Other Dangerous Materials and Technologies in the Former Soviet Union.*

NAS presented a proposal to DOD for developing a plan to increase U.S.-Russian research cooperation directed to the public health aspects of dangerous pathogens while furthering U.S. nonproliferation objectives. In addition to advancing the public health agendas of the two countries, NAS

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[1]In 1997, BIH released a white paper, *America's Vital Interest in Global Health,* which argued for collaborative U.S. engagement in activities similar to those discussed in this report.

believed that such cooperation also could build confidence at both the working and the government levels regarding compliance with international BW agreements.

The project began in the fall of 1996, with funding from the Cooperative Threat Reduction (CTR) Program, commonly referred to as the Nunn-Lugar Initiative. DOD provided CTR funds for supporting pilot research projects at Russian institutes to examine the potential for collaborative research activities that could be carried out effectively at facilities involved in the former Soviet BW program. A 14-member committee, which included members of the CISAC working group, the co-chair of BIH, and additional experts on BW and international health issues, developed the plan presented in this report with assistance from CISAC, BIH, and OCEE staff. Appendix A contains biographies of committee members and staff.

DOD charged the committee with emphasizing the conversion of former Soviet BW researchers to civilian work (see Appendix B for relevant excerpts from the contract). Since then, however, Congress has limited the mandate of the CTR program so that it no longer supports conversion activities as such. As a result, the committee focused on the related but broader nonproliferation goals that remain part of the CTR mandate. Early in its work and after discussions with DOD, the committee made two additional decisions. First, it decided to concentrate on Russia instead of the entire former Soviet Union. During the Soviet era there were limited BW facilities outside the Russian Federation; the major installation outside Russia, the Stepnogorsk standby production facility in Kazakhstan, is already the subject of a significant U.S. government redirection and dismantlement effort. Second, it focused its efforts on engaging the core of former Soviet BW personnel and facilities that had been involved in research on dangerous pathogens. The committee believes that U.S.-Russian cooperation in this domain—featuring direct laboratory-to-laboratory contacts and based on the principle of broad transparency—would benefit U.S. national security, public health, and economic interests as well as the advancement of fundamental science. The committee's rationale is presented in this report.

The committee believed that engaging Russian scientists and officials early in the planning effort was essential to the success of a long-term program of cooperation. To carry out this consultation and to gain firsthand knowledge of conditions and resources in former Soviet BW research facilities, a number of committee members and staff traveled to Russia on several occasions. Their visits are described in this report.

In developing the plan the committee was able to draw on the reports and studies of BW issues produced by many government agencies and nongovernment organizations, as well as individual policy and technical experts. Relevant U.S. government departments and organizations include the Department of State, Arms Control and Disarmament Agency, DOD, Department of Commerce, Central Intelligence Agency, and the Permanent Subcommittee on Investigations of the Governmental Affairs Committee of the U.S. Senate.

Among the academic institutions and nongovernment organizations and projects that have been interested in BW-related issues are the Chemical and Biological Arms Control Institute, the Harvard-Sussex Program on Chemical and Biological Weapons (CBW) Armament and Arms Limitation, the Henry L. Stimson Center, the New York Academy of Sciences, the Federation of American Scientists, the American Society of Microbiology, the Stockholm International Peace Research Institute, the Pugwash Conferences on Science and International Affairs, the Department of Peace Studies at the University of Bradford, Sandia National Laboratories, Lawrence Livermore National Laboratory, and the Monterey Institute for International Studies. Also, European scientists have been leading North Atlantic Treaty Organization workshops and projects on this topic. The *Declarations on Confidence-Building Measures* submitted each April since 1987 to the Centre for Disarmament Affairs at the United Nations by parties to the BWC provided particularly useful background information since they include U.S. and Russian declarations of past and present activities.